



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/626,446

07/24/2003

William R. Trutna JR.

10004287-1

9639

57299

7590

07/17/2007

Kathy Manke

Avago Technologies Limited

4380 Ziegler Road

Fort Collins, CO 80525

EXAMINER

LI, SHI K

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

07/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/626,446	Applicant(s) TRUTNA, WILLIAM R.	
	Examiner Shi K. Li	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
 4a) Of the above claim(s) 3-5, 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6-18, 21 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I in the reply filed on 14 May 2007 is acknowledged. The traversal is on the ground(s) that the second criteria specified by MPEP 803 is not met with regard to Species II and III because Species I, II and III include a number of common or substantially related elements and in order to properly examine the inventions defined by claims in Species I, it will likely be necessary for the Examiner to also search art relevant to claims in Species II and III. This is not found persuasive because one or more of the following reasons apply: The Species require a different field of search (e.g., searching different classes /subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or U.S.C. 112, first paragraph.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 9-11, 17-18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn et al. (B. Ahn et al., "A Symmetric-Structure CDMA-PON System and Its

Art Unit: 2613

Implementation", IEEE Photonics Technology Letters, Vol. 14, No. 9, September 2002) in view of Sourani (U.S. Patent Application Pub. 2003/0072060 A1).

Regarding claims 1-2, 11, 17-18 and 21, Ahn et al. discloses in FIG. 1 a CDMA-PON system comprising spread-spectrum encoders using PN code, a combiner for summing spread-spectrum information signal and an optical transceiver for converting the sum of the spread-spectrum information signals into optical signal. The difference between Ahn et al. and the claimed invention is that Ahn et al. does not teach a light source and a modulator. Sourani teaches in FIG. 2 a transceiver with laser 20 and modulator 24. One of ordinary skill in the art would have been motivated to combine the teaching of Sourani with the CDMA-PON system of Ahn et al. because the transceiver of Sourani has good receiver sensitivity, enables dynamic allocation without using costly components and may be used with a single bi-directional fiber. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a laser and a modulator, as taught by Sourani, in the CDMA-PON system of Ahn et al. because the transceiver of Sourani has good receiver sensitivity, enables dynamic allocation without using costly components and may be used with a single bi-directional fiber.

Regarding claim 9, Ahn et al. teaches in FIG. 1 Walsh code which is orthogonal.

Regarding claim 10, Ahn et al. teaches in FIG. 1 multipliers.

4. Claims 6-8, 14-16 and 22 rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn et al. and Sourani as applied to claims 1-2, 9-11, 17-18 and 21 above, and further in view of Mendez et al. (A. Mendez et al., "Code Division Multiple Access (CDMA) Enhancement of Wavelength Division Multiplexing (WDM) Systems", IEEE 1995) and Dafesh ((U.S. Patent 7,200,342).

Ahn et al. and Sourani have been discussed above in regard to claims 1-2, 9-11, 17-18 and 21. Sourani teaches WDM in FIG. 5A. The difference between Ahn et al. and Sourani and the claimed invention is that Ahn et al. and Sourani do not teach wavelength division multiplexer. Mendez et al. teaches on page 273, left col. combining CDMA coding with the WDM system. One of ordinary skill in the art would have been motivated to combine the teaching of Mendez et al. with the modified CDMA-PON of Ahn et al. and Sourani because this approach increases the number of users, reduces WDM crosstalk and reduces the number of required CDMA code sequence for the same size network. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine WDM with CDMA, as taught by Mendez et al., in the modified CDMA-PON of Ahn et al. and Sourani because this approach increases the number of users, reduces WDM crosstalk and reduces the number of required CDMA code sequence for the same size network. It is well known in the art the use of wavelength division multiplexer and demultiplexer in WDM network. For example, Dafesh teaches in FIG. 1 a CDMA/WDM network comprising wavelength division multiplexer 12 and demultiplexer 16. One of ordinary skill in the art would have been motivated to combine the teaching of Dafesh with the modified CDMA-PON of Ahn et al., Sourani and Mendez et al. because a demultiplexer separates WDM signals into individual wavelength channels so that each channel can be delivered to its destination. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use wavelength division demultiplexer, as taught by Dafesh, in the modified CDMA-PON of Ahn et al., Sourani and Mendez et al. because a demultiplexer separates WDM signals into individual wavelength channels so that each channel can be delivered to its destination.

Art Unit: 2613

5. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn et al. and Sourani as applied to claims 1-2, 9-11, 17-18 and 21 above, and further in view of Glisic et al. (S. Glisic et al., "New PN Code Acquisition Scheme for CDMA Networks with Low Signal-to-Noise Ratios", IEEE Transactions on Communications, Vol. 47, No. 2, February 1999) and Ziemer et al. ("Principles of Communications", Third Edition, by R. Ziemer et al., Houghton Mifflin, 1990, pp. 451-459).

Ahn et al. and Sourani have been discussed above in regard to claims 1-2, 9-11, 17-18 and 21. Sourani teaches WDM in FIG. 5A. The difference between Ahn et al. and Sourani and the claimed invention is that Ahn et al. and Sourani do not teach a code acquisition circuit. Glisic et al. teaches in FIG. 2 a PN code acquisition and tracking circuit. One of ordinary skill in the art would have been motivated to combine the teaching of Glisic et al. with the modified CDMA-PON of Ahn et al. and Sourani because the acquisition scheme of Glisic et al. has improved performance especially for signal with low signal-to-noise ratios. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the PN code acquisition and tracking scheme of Glisic et al., in the modified CDMA-PON of Ahn et al. and Sourani because the acquisition scheme of Glisic et al. has improved performance especially for signal with low signal-to-noise ratios. The combination of Ahn et al., Sourani and Glisic et al. still fails to teach and integrating and decision circuit. However, such circuit is well known in the art. For example, Ziemer et al. teaches in FIG. 7.3 receiver for binary data transmission. One of ordinary skill in the art would have been motivated to combine the teaching of Ziemer et al. with the modified CDMA-PON of Ahn et al., Sourani and Glisic et al. because the integrator averages out the noise component, which has a zero mean. Thus it would have been obvious to

Art Unit: 2613

one of ordinary skill in the art at the time the invention was made to include a integrating and decision circuit, as taught by Ziemer et al., in the modified CDMA-PON of Ahn et al., Sourani and Glisic et al. because the integrator averages out the noise component, which has a zero mean.

Response to Arguments

6. Applicant's arguments with respect to claims 1-2, 6-18 and 21-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 571 272-3031. The examiner can normally be reached on Monday-Friday (7:30 a.m. - 4:30 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/626,446

Page 7

Art Unit: 2613

skl

10 July 2007

A handwritten signature in black ink, appearing to read 'SK-Li'.

Shi K. Li
Patent Examiner